WHAT IS CLAIMED IS:

1. A method for communicating with a large number of remote satellite locations comprising simultaneously in random access mode communicating with a plurality of a first set of remote terminal devices and communicating with a plurality of second remote terminal devices in a dedicated mode using the same overlapping channels.

2. A method for communicating with a large number of remote satellite locations as recited in claim 1, wherein when one of said plurality of second remote terminal devices wants access to an inbound channel of one of said large number of remote satellite locations, said one of said a plurality of second remote terminal devices contends for an inbound channel, and if a collision occurs with another of said plurality of second remote terminal devices or plurality of first remote terminal devices, transmission from said one of said plurality of second remote terminal devices is repeated at one of random/pseudo random times, using random/pseudo random inbound resources, and random/pseudo random times using random/pseudo random inbound resources, until said one of said plurality of second remote terminal devices captures an inbound channel.

3. A method for communicating with a large number of remote satellite locations as recited in claim 2, wherein said one of said plurality of second remote

terminal devices determines if there is a high likelihood that a moderate to long transmission is being initiated, and when such a determination is made said one of said plurality of second remote terminal devices requests allocation of an assigned inbound channel.

4. A method for communicating with a large number of remote satellite locations as recited in claim 2, wherein if said one of said plurality of second remote terminal devices determines that said one of said plurality of second remote terminal devices has been active for a predetermined period of time, said one of said plurality of second remote terminal devices directly accesses said inbound channel.

5. A method for communicating with a large number of remote satellite locations as recited in claim 2, wherein said one of said plurality of second remote terminal devices determines that said one of said plurality of second remote terminal devices has been sufficiently active during a sliding window, said one of said plurality of second remote terminal devices directly accesses said channels.

6. A method for communicating with a large number of remote satellite locations as recited in claim 2, wherein when an inbound one of said channels has been allocated to said one of said plurality of second remote terminal devices, said one of said plurality of second remote terminal devices can no longer randomize its inbound transmissions and transmits on a predetermined portion of said inbound

channel whenever said one of said plurality of second remote terminal devices has inbound data to transmit.

7. A method for communicating with a large number of remote satellite locations as recited in claim 2, wherein inactive ones of said plurality of second remote terminal devices are configured to randomize their transmissions over said channels.

8. A method for communicating with a large number of remote satellite locations as recited in claim 1, wherein a hub site determines threshold criteria for determining when said remote terminal devices are active, and allocates said channels.

9. A method for communicating with a large number of remote satellite locations as recited in claim 8, wherein said hub site gathers traffic statistics from said remote terminal devices, identifies active ones of said remote terminal devices using said traffic statistics, and allocates inbound ones of said channels to said active remote terminal devices, and informs said plurality of first remote terminal devices and said plurality of second remote terminal devices of said allocation.

10. A method for communicating with a large number of remote satellite locations as recited in claim 3, wherein said one of said plurality of second remote terminal devices informs said plurality of first remote terminal devices and said

plurality of second remote terminal devices of said allocation.

11. A method for communicating with a large number of remote satellite locations as recited in claim 8, wherein each of said plurality of second remote terminal devices monitors their transmissions and notifies said hub site when it becomes active and is likely to have a medium to long transmission.

12. A method for communicating with a large number of remote satellite locations as recited in claim 11, wherein said hub site allocates a portion of inbound ones of said channels to a newly active one of said plurality of second remote terminal devices.

13. A method for communicating with a large number of remote satellite locations as recited in claim 1, wherein collisions between inbound packets from different ones of said first and second remote terminal devices are prevented by allocating one of frequency, time slot, and frequency and time slot to said ones of said first and second remote terminal devices that generate the most inbound traffic.

14. A method for communicating with a large number of remote satellite locations as recited in claim 13, wherein when there are more active ones of said first and second remote terminal devices than there are channels, each of said first and second remote terminal device is allocated a mini-slot.

15. A method for communicating with a large number of remote satellite

locations as recited in claim 14, wherein said mini-slot is a time slot every third frame.

16. A method for communicating with a large number of remote satellite locations as recited in claim 14, wherein said mini-slot is a time slot at an intermittent frequency.

17. A method for communicating with a large number of remote satellite locations as recited in claim 14, wherein said mini-slot is a time slot every third frame and at an intermittent frequency.

18. A method for communicating with a large number of remote satellite locations as recited in claim 14, wherein inbound one of said channels are allocated first to voice traffic followed by data traffic.

19. A method for communicating with a large number of remote satellite locations as recited in claim 8, wherein said hub site calculates a load for each of said first and second remote terminal device and retains said loads in memory.

20. A method for communicating with a large number of remote satellite locations as recited in claim 19, wherein said hub site correlates said loads for each of said first and second remote terminal devices with a last time slot in which a burst was last received from each of said first and second remote terminal devices, and maintains said correlated loads in an allocation table.

21. A method for communicating with a large number of remote satellite locations as recited in claim 19, wherein said hub site transmits changes to said allocation table to said first and second remote terminal devices.

22. A method for communicating with a large number of remote satellite locations as recited in claim 19, wherein said hub site updates said allocation table every inbound frame.

23. A method for communicating with a large number of remote satellite locations as recited in claim 8, wherein said hub site maintains a number of said channels and frequencies of all of said channels said first and second remote terminal devices can transmit on in memory.

24. A method for communicating with a large number of remote satellite locations as recited in claim 14, wherein said first and second remote terminal devices have a multi-slot counter, said mini-slot counter in each of said first and second remote terminal device being synchronized with said hub site and each of said first and second remote terminal devices.

25. A method for communicating with a large number of remote satellite locations as recited in claim 19, wherein said load for each of said first and second remote terminal device is calculated according to the following formula:

$$L_{new} = L_{old}(1-\tau)^n + \tau,$$

where τ is a configurable constant, n is the number of time-slots since a last time-slot on which a packet was received from a remote terminal device, and L_{old} is the previous load value of the remote terminal device.

26. A method for communicating with a large number of remote satellite locations as recited in claim 19, wherein said load for each of said first and second remote terminal device is calculated according to the following formula:

$$L_{new} = L_{old} * M * (1-1/N)^n + M/N$$

where M is a normalizing constant M, N is a time constant, which is the number of time-slots in T seconds (where T is a configuration parameter), and τ is 1/N.

27. A method for communicating with a large number of remote satellite locations as recited in claim 20, wherein said allocation table comprises information relating to a number of frequencies a remote terminal device is capable of utilizing, a number of mini-slots said remote terminal device may receive, a total number and identification of free inbound ones of said channels and mini-slots, a minimum and assigned maximum load value allocated to each of said first and second remote terminal

device, current inbound resources allocated to each of said plurality of first and second remote terminal devices, whether said remote terminal device may become an active site, and whether said remote terminal device has any weighting factors associated with its load calculations.

28. A method for communicating with a large number of remote satellite locations as recited in claim 20, wherein said allocation table comprises a list of all remote sites from which a packet was received during a last measure increment.

29. A method for communicating with a large number of remote satellite locations as recited in claim 28, wherein said measure increment is one of a multi-slot time period and window.

30. A system for communicating with a large number of remote satellite locations comprising:

a plurality of a first set of remote terminal devices;

a plurality of second remote terminal devices operating in a dedicated mode using the same overlapping channels; and

a hub site which determines threshold criteria for determining when said remote terminal devices are active, and allocates said channels.

31. A system for communicating with a large number of remote satellite

locations as recited in claim 30, wherein when one of said plurality of second remote terminal devices determines that there is a high likelihood that a moderate to long transmission is being initiated, a request for allocation of an assigned inbound channel is made.

32. A system for communicating with a large number of remote satellite locations as recited in claim 30, wherein when one of said plurality of second remote terminal devices has been active for a predetermined period of time, said one of said plurality of second remote terminal devices directly accesses an inbound one of said channels.

33. A system for communicating with a large number of remote satellite locations as recited in claim 30, wherein when said one of said plurality of second remote terminal devices has been sufficiently active during a sliding window, said one of said plurality of second remote terminal devices directly accesses said channels.

34. A system for communicating with a large number of remote satellite locations as recited in claim 30, wherein when one of said inbound channels has been allocated to said one of said plurality of second remote terminal devices, said one of said plurality of second remote terminal devices transmits on a predetermined portion of said inbound channel.

35. A system for communicating with a large number of remote satellite locations as recited in claim 30, wherein inactive ones of said plurality of second remote terminal devices are configured to randomize their transmissions over said channels.

36. A system for communicating with a large number of remote satellite locations as recited in claim 35, wherein said hub site gathers traffic statistics from said first and second remote terminal devices, identifies active ones of said remote terminal devices using said traffic statistics, allocates inbound ones of said channels to said active remote terminal devices, and informs said plurality of first and second remote terminal devices of said allocation.

37. A system for communicating with a large number of remote satellite locations as recited in claim 33, wherein each of said plurality of second remote terminal devices monitors their transmissions and notifies said hub site when it becomes active and is likely to have a medium to long transmission.

38. A system for communicating with a large number of remote satellite locations as recited in claim 33, wherein said hub site allocates a portion of inbound ones of said channels to a newly active one of said plurality of second remote terminal devices.

39. A system for communicating with a large number of remote satellite

locations as recited in claim 33, wherein collisions between inbound packets from different ones of said first and second remote terminal devices are prevented by allocating one of frequency, time slot, and frequency and time slot to said ones of said first and second remote terminal devices that generate the most inbound traffic.

40. A system for communicating with a large number of remote satellite locations as recited in claim 39, wherein when there are more active ones of said first and second remote terminal devices than there are channels, each of said first and second remote terminal device is allocated a mini-slot.

41. A system for communicating with a large number of remote satellite locations as recited in claim 40, wherein said mini-slot is a time slot every third frame.

42. A system for communicating with a large number of remote satellite locations as recited in claim 40, wherein said mini-slot is a time slot at an intermittent frequency.

43. A system for communicating with a large number of remote satellite locations as recited in claim 40, wherein said mini-slot is a time slot every third frame and at an intermittent frequency.

44. A system for communicating with a large number of remote satellite locations as recited in claim 40, wherein inbound one of said channels are allocated

first to voice traffic followed by data traffic.

45. A system for communicating with a large number of remote satellite locations as recited in claim 40, wherein said hub site calculates a load for each of said first and second remote terminal device and retains said loads in memory.

46. A system for communicating with a large number of remote satellite locations as recited in claim 45, wherein said hub site correlates said loads for each of said first and second remote terminal devices with a last time slot in which a burst was last received from each of said first and second remote terminal devices, and maintains said correlated loads in an allocation table.

47. A system for communicating with a large number of remote satellite locations as recited in claim 45, wherein said hub site transmits changes to said allocation table to said first and second remote terminal devices.

48. A system for communicating with a large number of remote satellite locations as recited in claim 46, wherein said hub site updates said allocation table every inbound frame.

49. A system for communicating with a large number of remote satellite locations as recited in claim 33, wherein said hub site comprises a memory in which a number of said channels and frequencies of all of said channels said first and second remote terminal devices can transmit on is maintained.

50. A system for communicating with a large number of remote satellite locations as recited in claim 40, wherein said first and second remote terminal devices comprise a multi-slot counter, said mini-slot counter in each of said first and second remote terminal device being synchronized with said hub site and each of said first and second remote terminal devices.

51. A system for communicating with a large number of remote satellite locations as recited in claim 45, wherein said load for each of said first and second remote terminal device is calculated according to the following formula:

$$L_{new} = L_{old}(1-\tau)^n + \tau ,$$

where τ is a configurable constant, n is the number of time-slots since a last time-slot on which a packet was received from a remote terminal device, and L_{old} is the previous load value of the remote terminal device.

52. A system for communicating with a large number of remote satellite locations as recited in claim 45, wherein said load for each of said first and second remote terminal device is calculated according to the following formula:

$$L_{new} = L_{old} * M * (1 - 1/N)^{n} + M/N$$

where M is a normalizing constant M, N is a time constant, which is the number of time-slots in T seconds (where T is a configuration parameter), and τ is 1/N.

53. A system for communicating with a large number of remote satellite locations as recited in claim 46, wherein said allocation table comprises information relating to a number of frequencies a remote terminal device is capable of utilizing, a number of mini-slots said remote terminal device may receive, a total number and identification of free inbound ones of said channels and mini-slots, a minimum and assigned maximum load value allocated to each of said first and second remote terminal device, current inbound resources allocated to each of said plurality of first and second remote terminal devices, whether said remote terminal device may become an active site, and whether said remote terminal device has any weighting factors associated with its load calculations.

54. A system for communicating with a large number of remote satellite locations as recited in claim 46, wherein said allocation table comprises a list of all remote sites from which a packet was received during a last measure increment.

55. A system for communicating with a large number of remote satellite locations as recited in claim 54, wherein said measure increment is one of a multi-slot time period and window.

56. A system for communicating with a large number of remote satellite locations comprising:

a plurality of a first set of remote terminal devices; and

a plurality of second remote terminal devices operating in a dedicated mode using the same overlapping channels, wherein said one of said plurality of second remote terminal devices informs said plurality of first remote terminal devices and said plurality of second remote terminal devices of said allocation.